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ABSTRACT

A statewide survey of educators and lay citizens was made to uncover their perceptions as to what are the most crucial concerns, problems, and needs of vocational education in Kentucky. A modified Delphi Survey was considered to be the most appropriate survey technique. A questionnaire (Appendix A) asking for a list of six to eight major concerns, problems, or needs facing vocational education in Kentucky was sent to respondents in five groups representing several sectors of the economy, several levels of the vocational education system, and all geographic areas of the state. The resulting items were developed into a survey instrument in which the respondents were asked to indicate their perceptions of the importance of each of 62 items on a five point scale (Appendix B). All items on the survey instrument were analyzed to provide mean scores and standard deviations for the total respondents as well as for each of the five respondent groups, which were then rank ordered according to the mean score for the total respondent group (Appendix C). The 62 items were then grouped into 13 clusters based upon their commonalities (Appendix D), and this information, combined with other sources, was used to establish research, exemplary, and dissemination priorities for 1976. (Appendix E). (HD)

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USING THE MODIFIED DELPHI TO DETERMINE RESEARCH PRIORITIES

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A Tool to Assist in the Development of Research, Exemplary and Dissemination Priorities for the Resources Development Unit Bureau of Vocational Education for Fiscal Year 1976

Robert M. Schneider
Director, Resources Development Unit
1975

CE 007 532

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The Kentucky Research in Vocational Education Series is a portion of the Kentucky Vocational Education Omnibus Dissemination Project. The Omnibus Dissemination Project is a funded project of the Kentucky Department of Education, Bureau of Vocational Education, for the purpose of increasing the utilization of vocational education research and development information.

Other documents in this series are:

- *A Guide for the Development of Proposals, Progress and Final Reports*
- *Proceedings of a Series of Workshops on Writing Research and Development Proposals*

This project is in agreement with Title IV of the Civil Rights Act and Title IX of the Education Amendments of 1972.

CE-007 537

OVERVIEW

If vocational education in the United States is to keep pace with the rapidly changing technology of a modern society, a comprehensive plan for vocational education research and development, accompanied by an aggressive dissemination plan, must be developed and maintained. However, just as other vocational education programs must be built upon a systematic foundation supported by a series of priorities, vocational education research and development must first identify the most crucial issues facing vocational education and then direct the appropriate resources toward the issues.

Recognizing this fact, the Resources Development Unit of the Kentucky Bureau of Vocational Education initiated early in 1975 a plan to develop such a list of research, exemplary and dissemination priorities.

The first step in this endeavor was to conduct a statewide survey of educators and lay citizens to uncover their perceptions as to what are the most crucial concerns, problems and needs of vocational education in Kentucky. While it was realized at the onset that additional information such as national priorities, prior commitments and the recommendations of the Kentucky State Advisory Council for Vocational Education must be given consideration in the ultimate determination of priorities, a broad based statewide survey was deemed as an appropriate foundation upon which to build.

In conducting this survey it was considered essential to receive input from several sectors of the economy, several levels of the vocational education system, and all geographical areas of the state. This broad base would allow for representation of unique conditions or settings, but prevent these circumstances from overly influencing the study. The involvement of a large proportion of lay citizens was considered to be an important step in overcoming the relatively

common practice of educators providing guidance to educators: a practice that frequently fails to adequately bring into focus the real world setting. Through consultation of the staff of the Bureau, the following five groups were identified to serve as respondents for the survey:

a. Advisory Committee for the Resources Development Unit – An eleven member committee representing the universities, the vocational schools, the public secondary schools, the State Advisory Council for Vocational Education, and business and industry.

b. Vocational Education Directors – The Director of Vocational Education from each of the fourteen vocational education regions in Kentucky.

c. Three Representatives from each of the fourteen Vocational Education Regional Advisory Committees – These forty-two representatives were all actively involved in the business and industrial sector of their respective regions.

d. University Representatives from the Bureau of Vocational Education/University Coordinating Committee – An eight member group made up of one representative from each of the eight Kentucky colleges and universities that have vocational teacher preparation programs.

e. Task Force for Research and Development – A seven member task force made up of professional staff members of the Frankfort office of the Bureau of Vocational Education.

The Survey Process

As this procedure does not require a large number of respondents, but does call for these respondents to react more than one time in the process, a modified Delphi Survey was considered to be the most appropriate survey technique.

The first mailing for this survey consisted of a letter to the respondents asking them to list six to eight major concerns, problems, or needs facing vocational education in Kentucky (Appendix A). This mailing resulted in the receipt of approximately 250 items. Through staff consultation, duplicate items were removed and certain items were combined to reduce this number to 62 items. These items were developed into a survey instrument in which the respondents were asked to indicate their perception of the importance of each item on a five point scale (Appendix B). A high priority item would receive five points while a low priority item would receive one point.

This second survey instrument was mailed to the 84 respondents with 72 usable forms being returned for an overall return rate of 86 percent.

All items on the survey instrument were analyzed to provide mean scores and standard deviations for the total respondents as well as for each of the five respondent groups. The items were then rank ordered according to the mean score for the total respondent group in Table I (Appendix C).

Through consultation with the research staff of the Bureau, the 62 items were then grouped into 13 clusters based upon their commonalities. These 13 clusters were then analyzed by determining the composite mean score and standard deviation for the items within each cluster. These clusters were then rank ordered based upon these mean scores as shown in Table II (Appendix D).

Survey Findings

The individual item analysis provided mean scores ranging from 4.513 to 2.591 with "an effective system of placement and follow-up" receiving the highest score. Concern for an adequate salary structure for vocational educators in comparison to industry was the item that received the second highest mean score. Two of the top five items related to vocational education guidance and follow-up while two other topics related to vocational education curriculum development.

In cluster analysis, the cluster relating to vocational education curriculum development received the highest cluster score. This indicated that the respondents perceived the need for vocational education curriculum development and implementation as a major problem. Several of the questions contained in the cluster included the concepts of competency based curriculum materials and open entry – open exit instruction. This tended to support the intensive efforts of the Kentucky Bureau of Vocational Education in the development of competency based curriculum materials and quite possibly called for additional efforts.

The cluster which received the second highest ranking concerned increasing the involvement of the public in the development of vocational education in Kentucky. While there has been a significant expansion of this practice in Kentucky over the past few years, it appeared that the respondents believe there should be renewed efforts in this endeavor. The increased use of advisory committees and task forces at all levels of vocational education appeared to be mandated in this study.

The third ranked cluster concerned the broad topic of guidance, placement and follow-up of vocational education students. While some efforts have been exerted towards a system of guidance, placement and follow-up, it did not appear to have been as great as the respondents believe it should be and additional efforts were needed.

While the balance of the clusters could have been examined in much the same light, it appeared unwise to examine the responses by clusters only. Some of the clusters that ranked quite low contained individual items that ranked high and justly demanded research, exemplary or dissemination efforts. An example of this is contained in Cluster XIII, the lowest ranked cluster. This cluster, relating to vocational education facilities and equipment, contained two items that ranked 18 and 19. While the item ranked 18 tended to be money oriented, it was related to the 19th ranked item, facility utilization. It may be possible, with limited expenditure of resources, to design a study to more completely determine the degree of utilization of facilities and equipment and identify methods and techniques to improve their utilization.

Incorporation of Survey Findings

As noted earlier, it is important to bear in mind that this survey was designed to serve as a tool to assist in the development of research, exemplary and dissemination priorities for FY 1976, but was not the sole source of input for these priorities. This information, combined with other sources of information, was used by the Bureau to establish research, exemplary and dissemination priorities for FY 1976 (Appendix E).

Following the adoption of these priorities, coordination activities were conducted with other bureaus of the Kentucky State Department of Education, and other state agencies, to develop a comprehensive plan for research, exemplary, and dissemination activities. Program budgets were developed based upon available funds. Requests for proposals were developed and forwarded to all school superintendents, colleges and universities, vocational education regional directors and other appropriate agencies. These, in turn, led to the funding of selected research, exemplary, and dissemination projects. These projects, combined with very selective dissemination activities by the research staff, led to a more comprehensive and systematic program or research, exemplary, and

dissemination activities for the Bureau of Vocational Education of Kentucky.

Future Plans

While the survey technique was considered very beneficial in the development of research, exemplary and dissemination priorities for FY 1976, it is anticipated that such a survey may not be needed yearly. Several of the priority items are of such magnitude that it may take several years to fully accomplish the necessary tasks for their completion. Therefore, many items on the 1976 priority list may continue to appear for several years. While no set schedule has been developed, it is anticipated that it would be beneficial to conduct a similar survey every second or third year.

APPENDICES

APPENDIX A

MAJOR PROBLEMS, CONCERNS, AND NEEDS
IN VOCATIONAL EDUCATION IN KENTUCKY

Please list the eight most critical problems concerns or needs in vocational education in Kentucky and return this list to:

Dr. Robert M. Schneider, Director
Resources Development Unit
Bureau of Vocational Education
2038 Capital Plaza Tower
Frankfort, Kentucky 40601

1.

2.

3.

4.

5.

6.

7.

8.

APPENDIX B

MAJOR PROBLEMS, CONCERNS AND NEEDS OF
VOCATIONAL EDUCATION IN KENTUCKY

The following list represents the combined factors that have been suggested as being the most critical for the advancement of vocational education in Kentucky. Please rate each factor as to the importance you perceive it by encircling the appropriate number, ranging from the most important (5) to the least important (1).

Please check the respondent group you represent:

_____ RDU Advisory Committee
_____ Regional Director
_____ Regional Advisory Committee
_____ Bureau of Vocational Education/ University Coordinating Committee
_____ Research & Development Task Force

EXAMPLE:

	Encircle the appropriate number				
	High Priority				*Low Priority*
1. *Use student follow-up to evaluate teachers.*	5	4	3	(2)	1
2. *Public relations and publicity.*	(5)	4	3	2	1

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1. Research and/or exemplary project on the use of educational TV in the teaching of adult vocational programs.	5	4	3	2	1
2. Procedure to provide learning center services to secondary students when needed.	5	4	3	2	1
3. Determining dropout causes at the secondary and postsecondary levels.	5	4	3	2	1
4. Study the reason and provide for corrective measurements, where vocational facilities are under-utilized while other schools are sorely in need of additional facilities.	5	4	3	2	1
5. Training should be geared to the geographical area in which the students resides.	5	4	3	2	1
6. Resident housing for highly technical programs.	5	4	3	2	1
7. Determine feasibility of insurance coverage versus frequency of loss of facilities and equipment through fire and theft.	5	4	3	2	1

		High Priority				Low Priority
8.	Uses and effectiveness of instructional materials produced and distributed to teachers.	5	4	3	2	1
9.	Realistically utilize business and industrial leaders in the design and structure of vocational curriculum in area schools.	5	4	3	2	1
10.	Task analysis of vocational teachers and administrators for the purpose of improving their preparation.	5	4	3	2	1
11.	A follow-up study of individuals who have received vocational education while serving in a correctional institution.	5	4	3	2	1
12.	An impact study of research and development activities in Kentucky.	5	4	3	2	1
13.	Student orientation of job opportunities and requirements.	5	4	3	2	1
14.	Establishment of a Comprehensive Vocational Professional Development Program to serve as a statewide model.	5	4	3	2	1
15.	An effective system of placement and follow-up.	5	4	3	2	1
16.	Personnel exchange programs between Bureau of Vocational Education, Regional Staffs, and Universities.	5	4	3	2	1
17.	Teacher recruitment and retention.	5	4	3	2	1
18.	Provide an adequate salary structure in comparison to industry and other educational agencies.	5	4	3	2	1
19.	Expand the cooperative education programs.	5	4	3	2	1
20.	Follow-up studies to ascertain the effectiveness of cooperative programs.	5	4	3	2	1
21.	Research to attempt to determine better and more effective ways of providing vocational education for the disadvantaged and handicapped.	5	4	3	2	1
22.	Examination and review of industrial and technical teacher education programs in Kentucky.	5	4	3	2	1

		High Priority				Low Priority
23.	Follow-up research on adult vocational students.	5	4	3	2	1
24.	Upgrade vocational counselor preparation programs.	5	4	3	2	1
25.	Effect of competency based teacher education on certification requirements.	5	4	3	2	1
26.	Effectiveness of alternative career exploration programs in the development of vocational knowledge	5	4	3	2	1
27.	Additional facilities to accomodate more students.	5	4	3	2	1
28.	Up-grading and continuing vocational programs.	5	4	3	2	1
29.	Curriculum Development.	5	4	3	2	1
30.	Management information system for vocational education.	5	4	3	2	1
31.	Curriculum for open entry - open exit programs.	5	4	3	2	1
32.	A follow-up study of home economics teachers who have completed courses in gainful employment programs.	5	4	3	2	1
33.	More vocational classes in high schools which are not served by vocational schools.	5	4	3	2	1
34.	Identification and validation of competencies needed in various occupational areas.	5	4	3	2	1
35.	Better and more feasible postsecondary vocational education.	5	4	3	2	1
36.	Determine most economical design of facility for energy conservation.	5	4	3	2	1
37.	The relationship between academic subjects necessary for entry level into vocational programs.	5	4	3	2	1
38.	How to use advisory councils and craft committees more effectively.	5	4	3	2	1
39.	The immediate and long-range effect of middle and junior high career exploration programs on the academic achievement of students.	5	4	3	2	1

		High Priority				Low Priority
40.	Follow-up of past funded career education projects to ascertain what has happened or is happening since funding stopped.	5	4	3	2	1
41.	Competency based curriculum development.	5	4	3	2	1
42.	Special vocational needs of the middle grade students and the extent to which these needs are met in various grade alignment patterns.	5	4	3	2	1
43.	Articulation between vocational programs in the state vocational technical schools and the colleges and universities of Kentucky.	5	4	3	2	1
44.	Wedding of adult vocational education and adult basic education.	5	4	3	2	1
45.	Compare the effectiveness of live work versus simulated work.	5	4	3	2	1
46.	Relationship between teacher preparation and student outcomes.	5	4	3	2	1
47.	Evaluation of vocational education programs.	5	4	3	2	1
48.	Make sure training objectives conform to the practical conditions anticipated in each vocational field.	5	4	3	2	1
49.	Improve the image of vocational education.	5	4	3	2	1
50.	Development of a system for statewide dissemination of vocational education research information.	5	4	3	2	1
51.	Inservice needs of vocational teachers.	5	4	3	2	1
52.	Money for new and updated equipment for our students to work with.	5	4	3	2	1
53.	Information dissemination system for in-state events, activities and opportunities in postsecondary technical and occupational education.	5	4	3	2	1
54.	Provide preservice and inservice education to teachers, counselors and administrators on implementing career education.	5	4	3	2	1
55.	Practical Arts emphasis needed on junior high level.	5	4	3	2	1

		High Priority				Low Priority
56.	Better administrative procedures for all levels of vocational education.	5	4	3	2	1
57.	Orientation program for new teachers.	5	4	3	2	1
58.	Management training - vocational administrators.	5	4	3	2	1
59.	Adequate counseling prior to enrolling in vocational education programs.	5	4	3	2	1
60.	More comprehensive training in mine occupations.	5	4	3	2	1
61.	Effectiveness of different teaching methods to include competency based instruction.	5	4	3	2	1
62.	Preparation of vocational-technical education instructors to utilize competency-based instructional materials in an individualized instruction program.	5	4	3	2	1

If we have somehow missed a factor that you consider important, please write the factor below, its ranking, and your reasons for considering the factor:

1. 5 4 3 2 1

REASON:

2. 5 4 3 2 1

REASON:

COMMENTS:

Table I

ANALYSIS OF RESPONSES BY INDIVIDUAL ITEMS
N=72*

Rank	Item #	Item		Total	RDU Adv. Comm.	Reg. Dir.	Reg. Adv. Comm.	Univ. Coord. Comm.	R & D Task Force
1	15	An effective system of placement and follow-up.	n	72	11	14	32	8	7
			$\bar{X}$	4.513	4.454	4.857	4.531	4.250	4.142
			sd	.768	.934	.363	.802	.886	.690
2	18	Provide an adequate salary structure in comparison to industry and other educational agencies.	n	72	11	14	32	8	7
			$\bar{X}$	4.361	4.090	4.714	4.636	3.625	3.714
			sd	1.011	1.095	.611	.699	1.407	1.496
3	59	Adequate counseling prior to enrolling in vocational education programs.	n	72	11	14	32	8	7
			$\bar{X}$	4.317	4.181	4.571	4.531	3.875	4.857
			sd	.955	.873	.755	.621	1.457	.377
4	34	Identification and validation of competencies needed in various occupational areas.	n	72	11	14	32	8	7
			$\bar{X}$	4.277	4.272	4.571	4.125	4.375	4.285
			sd	.826	.904	.513	.870	.744	1.112
5	62	Preparation of vocational-technical education instructors to utilize competency-based instructional materials in an individualized instruction program.	n	70	10	14	31	8	7
			$\bar{X}$	4.228	4.000	4.571	4.322	4.000	3.714
			sd	.887	.942	.513	.832	.925	1.380
6	15	Expand the cooperative education program.	n	72	11	14	32	8	7
			$\bar{X}$	4.194	4.181	4.357	4.187	3.875	4.285
			sd	.929	.873	1.008	.931	1.125	.755
7	13	Student orientation of job opportunities and requirements.	n	72	11	14	32	8	7
			$\bar{X}$	4.180	3.818	4.428	4.500	3.000	4.142
			sd	1.129	1.537	.646	1.047	1.069	.690

*Seventy-two questionnaires were received and used in this tabulation. However, responses to all items will not always total 72 due to a few respondents not reacting to some items.

APPENDIX C

Rank	Item #	Item		Total	RDU Adv. Comm.	Reg. Dir.	Reg. Adv. Comm.	Univ. Coord. Comm.	S.D. Task Force
8	9	Realistically utilize business & industrial leaders in the design and structure of vocational curriculum in area schools.	n	72	11	14	32	8	7
			x̄	4.166	4.727	4.071	4.281	3.625	3.571
			sd	.964	.646	.730	.728	1.187	1.812
9	43	Articulation between vocational programs in the state vocational technical schools and the colleges and universities of Kentucky.	n	71	10	14	32	8	7
			x̄	4.098	3.300	4.357	4.156	4.500	4.000
			sd	.958	1.337	.744	.846	.755	1.000
10	31	Curriculum for open entry - open exit programs.	n	71	10	14	32	8	7
			x̄	4.098	4.400	4.642	3.812	4.000	4.000
			sd	1.123	1.264	.633	1.281	.755	1.000
11	35	Better and more feasible post-secondary vocational education.	n	71	10	14	32	8	7
			x̄	4.097	3.700	4.142	4.218	4.000	2.857
			sd	1.036	1.337	1.027	.974	1.069	1.000
12	24	Upgrade vocational counselor preparation programs.	n	72	11	14	32	8	7
			x̄	4.069	4.000	4.285	4.031	4.000	4.000
			sd	1.039	1.095	.825	1.092	.925	1.414
13	57	Orientation program for new teachers.	n	71	10	14	32	8	7
			x̄	4.058	3.200	4.357	4.250	4.125	4.285
			sd	.947	1.316	.633	.762	.834	.755
14	28	Up-grading and continuing vocational programs.	n	69	9	14	31	8	7
			x̄	4.057	4.000	4.285	4.419	3.375	2.857
			sd	1.027	1.322	.726	.672	1.302	1.069
15	51	Inservice needs of vocational teachers.	n	71	10	14	32	8	7
			x̄	4.042	4.000	4.214	4.093	4.250	3.285
			sd	1.047	.942	.974	1.117	.886	1.112

Rank	Item #	Item		Total	RDU Adv. Comm.	Reg. Dir.	Reg. Adv. Comm.	Univ. Coord. Comm.	R & D Task Force
16	29	Curriculum Development.	n	72	11	14	32	8	7
			$\bar{x}$	4.041	3.636	4.571	4.343	3.250	3.142
			sd	.970	.809	.646	.653	1.035	1.573
17	56	Better administrative procedures for all levels of vocational education.	n	71	10	14	32	8	7
			$\bar{x}$	4.014	3.600	3.928	4.000	4.500	4.285
			sd	.879	.966	.615	.930	.755	.951
18	52	Money for new and updated equipment for our students to work with.	n	71	10	14	32	8	7
			$\bar{x}$	4.014	3.700	4.642	4.218	3.125	3.285
			sd	1.152	1.159	.497	.941	1.552	1.603
19	4	Study the reason and provide for corrective measurements, where vocational facilities are under-utilized while other schools are sorely in need of additional facilities.	n	72	11	14	32	8	7
			$\bar{x}$	4.013	3.818	3.714	4.093	4.250	4.285
			sd	1.027	1.470	.913	.962	.707	1.112
20	41	Competency based curriculum development.	n	70	10	14	31	8	7
			$\bar{x}$	3.985	4.000	4.500	3.870	3.750	3.714
			sd	.999	.942	.518	1.024	.886	1.603
21	17	Teacher recruitment and retention.	n	72	11	14	32	8	7
			$\bar{x}$	3.972	4.181	4.000	4.187	3.125	3.571
			sd	1.087	.873	.960	1.060	1.246	1.272
22	8	Uses and effectiveness of instructional materials produced and distributed to teachers.	n	71	10	14	32	8	7
			$\bar{x}$	3.929	3.900	3.857	4.062	3.500	4.000
			sd	.950	.737	.662	.759	1.309	1.154

Rank	Item #	Item		Total	RDE Adv. Comm.	Reg. Div.	Reg. Adv. Comm.	Univ. Coord. Comm.	R & D Task Force
23	48	Make sure training objectives conform to the practical conditions anticipated in each vocational field.	n	71	10	14	32	8	7
			$\bar{X}$	3.929	4.100	3.857	4.156	3.500	3.285
			sd	1.162	1.286	.949	1.080	1.309	1.496
24	47	Evaluation of vocational education programs.	n	72	11	14	32	8	7
			$\bar{X}$	3.902	3.454	3.857	4.312	3.375	3.428
			sd	1.152	1.293	1.167	.859	1.505	1.272
25	58	Management training - vocational administrators.	n	71	11	14	31	8	7
			$\bar{X}$	3.877	3.727	3.785	3.838	4.000	4.142
			sd	.913	.904	.892	.969	.925	1.069
26	21	Research to attempt to determine better and more effective ways of providing vocational education for the disadvantaged and handicapped.	n	72	11	14	32	8	7
			$\bar{X}$	3.861	3.818	3.785	4.093	3.625	3.285
			sd	.997	.981	.974	.892	1.060	1.380
27	10	Task analysis of vocational teachers and administrators for the purpose of improving their preparation.	n	72	11	14	32	8	7
			$\bar{X}$	3.833	3.636	3.714	3.937	4.125	3.571
			sd	.919	.924	.825	.981	.834	.975
28	38	How to use advisory councils and craft committees more effectively.	n	72	11	14	32	8	7
			$\bar{X}$	3.819	3.909	4.071	4.031	3.000	3.142
			sd	1.091	.943	.916	.966	1.511	1.214
29	22	Examination and review of industrial and technical teacher education programs in Kentucky.	n	70	10	14	32	8	6
			$\bar{X}$	3.814	3.700	4.142	3.968	3.375	3.000
			sd	1.067	.948	.770	1.149	1.187	.894

Rank	Item #	Item		Total	RDU Adv. Comm.	Reg. Dir.	Reg. Adv. Comm.	Univ. Coord. Comm.	R & D Task Force
30	30	Management information system for vocational education.	n	71	10	14	32	8	7
			$\bar{x}$	3.802	3.800	4.071	4.031	2.750	3.428
			sd	1.090	1.229	.615	.999	1.281	1.272
31	49	Improve the image of vocational education.	n	72	11	14	32	8	7
			$\bar{x}$	3.791	3.727	3.928	3.937	3.625	3.142
			sd	1.221	1.489	.828	1.242	1.407	1.214
32	20	Follow-up studies to ascertain the effectiveness of cooperative programs.	n	72	11	14	32	8	7
			$\bar{x}$	3.763	3.636	3.928	3.938	3.125	3.428
			sd	.985	1.286	.997	.8[illegible]	.834	.975
33	37	The relationship between academic subjects necessary for entry level into vocational programs.	n	71	11	14	31	8	7
			$\bar{x}$	3.746	4.000	3.857	3.709	3.125	4.000
			sd	1.104	1.264	.949	1.006	1.457	1.154
34	61	Effectiveness of different teaching methods to include competency based instruction.	n	70	10	14	31	8	7
			$\bar{x}$	3.742	3.800	4.214	3.806	2.875	3.428
			sd	1.045	.632	.892	.980	1.457	1.133
35	25	Effect of competency based teacher education on certification requirements.	n	71	10	14	32	8	7
			$\bar{x}$	3.714	4.000	4.000	3.838	3.000	3.000
			sd	.994	.816	.554	1.003	1.069	1.290
36	39	The immediate and long-range effect of middle and junior high career exploration programs on the academic achievement of students.	n	72	11	14	32	8	7
			$\bar{x}$	3.708	3.818	4.071	3.687	3.000	3.714
			sd	1.106	1.250	.997	1.060	1.309	.951

Rank	Item #	Item		Total	RDU Adv. Comm.	Reg. Dir.	Reg. Adv. Comm.	Univ. Coord. Comm.	R & D Task Force
37	26	Effectiveness of alternative career exploration programs in the development of vocational knowledge.	n	69	10	13	31	8	7
			x̄	3.695	3.900	3.846	3.580	3.125	4.285
			sd	1.019	.875	.800	1.057	1.246	.951
38	3	Determining dropout causes at the secondary and postsecondary levels.	n	72	11	14	32	8	7
			x̄	3.680	3.909	4.000	3.687	3.125	3.285
			sd	1.111	1.044	.784	1.148	1.457	1.112
39	50	Development of a system for statewide dissemination of vocational education research information.	n	72	11	14	32	8	7
			x̄	3.666	3.272	3.785	3.781	3.125	4.142
			sd	1.061	.904	.699	1.184	1.355	.690
40	14	Establishment of a Comprehensive Vocational Professional Development Program to serve as a statewide model.	n	69	9	14	31	8	7
			x̄	3.666	3.000	3.642	3.967	3.625	3.285
			sd	1.107	1.500	.841	1.079	1.060	.951
41	33	More vocational classes in high schools which are not served by vocational schools.	n	71	10	14	32	8	7
			x̄	3.633	4.400	3.428	3.656	3.625	2.857
			sd	1.209	1.074	.937	1.334	1.060	1.069
42	42	Special vocational needs of the middle grade students and the extent to which these needs are met in various grade alignment patterns.	n	70	10	14	31	8	7
			x̄	3.628	3.600	3.642	3.870	3.250	3.000
			sd	1.169	1.505	.841	1.231	1.035	1.000
43	54	Provide preservice and inservice education to teachers, counselors and administrators on implementing career education.	n	71	10	14	32	8	7
			x̄	3.577	3.200	3.857	3.625	3.250	3.714
			sd	1.283	1.229	1.350	1.263	1.581	1.112

Rank	Item #	Item		Total	RDU Adv. Comm.	Reg. Dir.	Reg. Adv. Comm.	Univ. Coord. Comm.	R & D Task Force
44	55	Practical Arts emphasis needed on junior high level.	n	[illegible]	11	14	32	8	7
			x̄	3.555	4.181	4.071	3.343	2.875	3.285
			sd	1.086	.750	.828	1.003	1.552	1.112
45	44	Wedding of adult vocational education and adult basic education.	n	72	11	14	32	8	7
			x̄	3.460	2.909	3.500	3.375	4.125	3.857
			sd	1.156	1.375	.854	1.128	1.125	1.214
46	16	Personnel exchange programs between Bureau of Vocational Education, Regional Staffs, and Universities.	n	70	10	14	31	8	7
			x̄	3.436	3.500	3.285	3.483	3.750	2.857
			sd	1.143	.971	.994	1.287	.886	1.214
47	36	Determine most economical design of facility for energy conservation.	n	72	11	14	32	8	7
			x̄	3.430	2.818	3.714	3.656	3.[illegible]00	3.285
			sd	1.319	1.250	1.069	1.285	1.[illegible]72	1.380
48	40	Follow-up of past funded career education projects to ascertain what has happened or is happening since funding stopped.	n	71	10	14	32	[illegible]	7
			x̄	3.422	3.800	3.500	3.500	2.875	3.857
			sd	1.129	.918	.759	1.481	1.45[illegible]	1.345
49	46	Relationship between teacher preparation and student outcomes.	n	72	11	14	32	8	7
			x̄	3.419	3.272	3.642	3.531	3.250	2.857
			sd	1.169	1.009	1.150	1.190	1.488	1.214
50	53	Information dissemination system for in-state events, activities and opportunities in postsecondary technical & occupational education.	n	70	10	14	31	8	7
			x̄	3.371	3.000	3.571	3.419	3.250	3.428
			sd	1.065	.942	.851	1.088	1.28[illegible]	1.397

Rank	Item #	Item		Total	RDU Adv. Comm.	Reg. Dir.	Reg. Adv. Comm.	Univ. Coord. Comm.	R & D Task Force
51	23	Follow-up research on adult vocational students.	n	71	11	14	31	8	7
			x̄	3.352	3.272	3.071	3.516	3.125	3.571
			sd	.972	.467	.997	1.[illegible]1	.640	1.133
52	60	More comprehensive training in mine occupations.	n	69	10	13	31	8	7
			x̄	3.333	3.000	3.461	3.451	3.125	3.285
			sd	1.093	1.054	1.198	1.178	.834	.951
53	45	Compare the effectiveness of live work versus simulated work.	n	71	10	14	32	8	7
			x̄	3.323	3.100	3.500	3.500	3.250	2.571
			sd	1.227	.994	1.286	1.218	1.388	1.272
54	2	Procedure to provide learning center services to secondary students when needed.	n	70	9	14	32	8	7
			x̄	3.214	2.666	3.285	3.593	2.500	2.857
			sd	1.165	.866	1.069	1.214	1.195	.899
55	27	Additional facilities to accomodate more students.	n	70	9	14	32	8	7
			x̄	3.214	3.333	3.857	3.375	1.875	2.571
			sd	1.317	1.322	1.099	1.338	.834	.975
56	5	Training should be geared to the geographical area in which the student resides.	n	72	11	14	32	8	7
			x̄	3.178	2.727	3.000	3.718	3.000	2.000
			sd	1.387	1.737	1.109	1.250	1.414	1.154
57	17	A follow-up study of individuals who have received vocational education while serving in a correctional institution.	n	72	11	14	32	8	7
			x̄	2.972	2.454	3.142	2.812	3.000	4.142
			sd	1.125	.820	1.099	1.029	1.511	.899
58	1	Research and/or exemplary project on the use of educational TV in the teaching of adult vocational programs.	n	72	11	14	32	8	7
			x̄	2.833	3.000	2.785	2.875	2.500	2.857
			sd	1.125	.744	.699	1.313	1.195	1.463

Rank	Item #	Item		Total	RDU Adv. Comm.	Reg. Dir.	Reg. Adv. Comm.	Univ. Coord Com.	R & D Task Force
59	12	An impact study of research and development activities in Kentucky.	n	72	11	14	32	8	7
			x̄	2.833	2.636	3.214	2.593	3.125	3.142
			sd	1.267	1.361	1.121	1.266	1.125	1.573
60	7	Determine feasibility of insurance coverage versus frequency of loss of facilities and equipment through fire and theft.	n	71	10	14	32	8	7
			x̄	2.760	2.600	2.857	2.843	2.750	2.428
			sd	1.101	1.349	1.027	1.080	1.281	.975
61	6	Resident housing for highly technical programs.	n	71	10	14	32	8	7
			x̄	2.625	3.000	2.928	2.625	2.625	1.857
			sd	1.357	1.490	1.141	1.385	1.407	1.069
62	32	A follow-up study of home economics teachers who have completed courses in gainful employment programs.	n	69	10	14	31	8	6
			x̄	2.591	2.600	2.928	2.548	2.375	2.333
			sd	[illegible]	1.173	.730	1.120	1.060	.816

Table II

ANALYSIS OF RESPONSES BY ITEM CLUSTERS

Rank	Cluster Heading		Total 72	K/U Adv. Comm. 11	Reg. Dir. 14	Reg. Adv. Comm. 32	Univ. Coord. Comm. 8	R & D Task Force 7
I	Vocational education curriculum development.	$\bar{X}$	4.070	4.038	4.428	4.044	3.775	3.828
		sd	.961	.948	.649	.950	.999	1.294
	Question # / Rank / $\bar{X}$: 34 / 4 / 4.277; 31 / 10 / 4.098; 29 / 16 / 4.041; 41 / 20 / 3.985; 8 / 22 / 3.929							
II	Involvement of the public in vocational education program development and operation.	$\bar{X}$	3.993	4.318	4.071	4.156	3.312	3.357
		sd	1.041	.893	.813	.658	1.352	1.499
	Question # / Rank / $\bar{X}$: 9 / 8 / 4.166; 38 / 28 / 3.819							
III	Vocational Education Guidance, Placement and Follow-up.	$\bar{X}$	3.958	3.750	4.200	4.012	3.450	4.114
		sd	1.151	1.239	.957	1.160	1.338	.900
	Question # / Rank / $\bar{X}$: 15 / 1 / 4.513; 59 / 3 / 4.317; 13 / 7 / 4.180; 3 / 38 / 3.680; 11 / 57 / 2.972							

Rank	Cluster Heading	n	Total 72	RDU Adv. Comm. 11	Reg. Dir. 14	Reg. Adv. Comm. 32	Univ. Coord. Comm. 8	R & D Task Force 7
IV	Vocational teacher recruitment, education, and retention.	x̄	3.799	3.609	4.029	3.918	3.500	3.414
		sd	1.142	1.149	.950	1.144	1.213	1.206

Question #	Rank	x̄
18	2	4.361
62	5	4.228
24	12	4.069
57	13	4.058
51	15	4.042
17	21	3.972
22	29	3.814
25	35	3.714
14	40	3.666
54	43	3.577
46	49	3.419
32	62	2.591

V	Management of vocational education programs, services, and activities.	x̄	3.790	3.653	3.757	3.859	3.825	3.657
		sd	1.010	.967	.824	1.046	1.083	1.161

Question #	Rank	x̄
56	17	4.014
58	25	3.877
10	27	3.833
30	30	3.802
16	46	3.436

Rank	Cluster Heading	n	Total 72	RDU Adv. Comm. 11	Reg. Dir. 14	Reg. Adv. Comm. 32	Univ. Coord. Comm. 8	R & D Task Force 7
VI	Vocational education techniques -- cooperative education, competency based educatin, simulation, and TV instruction.	$\bar{x}$	3.776	3.690	4.000	3.866	3.281	3.428
		sd	1.078	1.023	1.078	1.026	1.224	1.168
	Question # Rank $\bar{x}$							
	19 6 4.194							
	20 32 3.763							
	61 34 3.742							
	45 53 3.323							
VII	Selection, development and articulation of vocational education programs.	$\bar{x}$	3.716	3.633	3.752	3.893	3.464	3.183
		sd	1.198	1.396	1.031	1.109	1.220	1.252
	Question # Rank $\bar{x}$							
	43 9 4.098							
	28 14 4.057							
	48 23 3.929							
	37 33 3.746							
	33 41 3.633							
	60 52 3.333							
	5 56 3.178							
VIII	Vocational education information dissemination.	$\bar{x}$	3.612	3.343	3.761	3.715	3.333	3.571
		sd	1.127	1.153	.790	1.181	1.307	1.164
	Question # Rank $\bar{x}$							
	49 31 3.791							
	50 39 3.666							
	53 50 3.371							

Rank	Cluster Heading	n	Total 72	RDU Adv. Comm. 11	Reg. Dir. 14	Reg. Adv. Comm. 32	Univ Coord. Comm. 8	R & D Task Force 7
IX	Career education, practical arts education or pre-vocational education for the middle school students.	x̄	3.610	3.865	3.556	3.797	3.025	3.647
		sd	1.091	1.066	1.114	.850	1.270	1.124
	Question # / Rank / x̄: 39 / 36 / 3.708; 26 / 37 / 3.695; 42 / 42 / 3.628; 55 / 44 / 3.555; 40 / 48 / 3.422							
X	Vocational education for disadvantaged and handicapped students.	x̄	3.538	3.300	3.535	3.826	3.194	3.142
		sd	1.124	1.080	1.035	1.118	1.14[illegible]	.949
	Question # / Rank / x̄: 21 / 26 / 3.861; 2 / 54 / 3.214							
XI	Adult and continuing education.	x̄	3.435	3.209	3.375	3.523	3.437	3.571
		sd	1.159	1.059	1.019	1.250	1.189	1.230
	Question # / Rank / x̄: 35 / 11 / 4.097; 44 / 45 / 3.460; 23 / 51 / 3.352; 1 / 58 / 2.833							

Rank	Cluster Heading		Total 72	RDU Adv. Comm. 11	Reg. Dir. 14	Reg. Adv. Comm. 32	Univ. Coord. Comm. 8	R & D Task Force 7
XII	Evaluation of vocational education programs, services, and activities.	$\bar{X}$	3.368	3.037	3.892	3.453	3.250	3.0[illegible]
		sd	1.320	1.372	1.749	1.379	1.290	1.579
	Question # Rank $\bar{X}$							
	47 24 3.902							
	12 59 2.833							
XIII	Vocational education facilities and equipment.	$\bar{X}$	3.350	3.213	3.559	3.468	2.937	2.932
		sd	1.319	1.367	1.122	1.306	1.435	1.378
	Question # Rank $\bar{X}$							
	52 18 4.014							
	4 19 4.013							
	36 47 3.430							
	27 55 3.214							
	7 60 2.760							
	6 61 2.625							

APPENDIX E

Resources Development Unit
Research, Exemplary and Dissemination Priorities
Fiscal Year 1976*

1. Conduct an impact evaluation study of the past R & D activities of the Resources Development Unit.

2. Expand the program for disseminating research results, demonstration efforts and technical information relating to innovative methods, procedures, and practices for improving vocational education.

3. Identify and demonstrate techniques to increase the efficiency and effectiveness of the utilization of facilities and equipment in the State Vocational Technical Schools and Area Extension Centers.

4. Conduct supportive research, exemplary and dissemination activities for the development and implementation of competency based education.

5. Conduct predictive and projective research to be used in determining the future needs of vocational education.

6. Support the development of a comprehensive plan of guidance, placement and follow-up of vocational education students that will extend from grades 7, 8, or 9 through postsecondary and adult education.

7. Expand the operation of a statewide program of dissemination to support existing programs in vocational education through publications and all media channels.

*These 12 topics are not listed in any hierarchical order as all topics are to receive attention.

8. Identify and demonstrate techniques to produce additional vocational education experience for students in the real work world setting.

9. Develop a model vocational education needs assessment program that will be applicable to a school district, a vocational education region or the State as a total.

10. Conduct a study to determine the vocational education needs of the disadvantaged and handicapped students in Kentucky.

11. Identify and demonstrate techniques to improve postsecondary, adult and continuing education in Kentucky.

12. Identify and demonstrate techniques to expand the concept of educational laddering or educational articulation as it relates to vocational education.

Research, Exemplary and Dissemination Priorities With Supporting Statements – Fiscal Year 1976

1. Conduct an impact study of the past Research and Development activities of the Resources Development Unit.

Accountability has become more necessary in our present society than it has ever been. This is due in large part to the adverse present economic conditions. While the age of accountability has been with us for some time, elected officials are requesting more impact information than before due to the large amount of federal dollars being provided for vocational education. This is evidenced by the recent General Accounting Office Report and the widely publicized National Institute of Education study on the effectiveness of vocational education.

Whereas, vocational education Research and Development has been funded in large by federal funds and due to the high

priority placed on the demand for impact information by the United States Office of Education as well as the National and State Advisory Committees it behooves this unit to make this a research priority for FY76. The continuation and expansion of research efforts in vocational education may well depend on being able to provide emperical data on the impact this function has had across the state and nation.

2. Expand the program for disseminating research results, demonstration efforts and technical information relating to innovative methods, procedures, and practices for improving vocational education.

One of the major problems for the organization involved in the area of research and development is putting the research findings to work. The shelves in many libraries are full of unused research documents, while in the schools there are many serious problems that need to be solved. How does one improve the percentage of uptake? How does the researcher know if his finding will actually perform in the school? Where does he receive feedback? How does he know if he needs to redirect or realign his areas of investigation? We believe that the Resources Development Unit would be remiss in its duties if it does not attempt to answer these questions and develop new programs which will increase the utilization of research and exemplary program findings.

To this extent there appears to be merit in expanding our technical publications and continuing our investigations into "grass-roots" approaches to Research and Development dissemination problems. There also appears to be a need to design programs which develop change agents on the individual school level, bring them face-to-face with the innovation via a demonstration school network, instruct them in the importance of the innovation through a continuation of the "mini-conference," and then develop informational procedures and programs which will allow them to spread the innovation in the field.

Another component in this program appears to be a series of activities which would increase the understanding of research, exemplary and dissemination programs held by people in the field. This program would utilize:

- A dissemination mini-grant program,
- Service area dissemination notebooks, and
- The Bureau of Vocational Education Research in Vocational Education Series.

The last component of the program would be activities which provide an input into Bureau programs from outside, as well as within, Kentucky. Such a program would include:

- INNOVATE,
- TEMPO, and
- Presentations on Kentucky activities at out-of-state seminars, conferences and workshops.

3. Identify and demonstrate techniques to increase the efficiency and effectiveness of the utilization of facilities and equipment in the State Vocational Technical Schools and Area Extension Centers.

The Occupational Information Unit of the Bureau of Vocational Education has gathered data that indicates the enrollment for various programs in the State Vocational Technical Schools and Area Vocational Education Centers across the State. This gives a good indication on the degrees of utilization of these facilities and equipment by programs and schools. However, it does not indicate why certain programs have low levels of utilization or offer suggestive steps to increase their utilization.

There appears to be merit in exploring in greater depth the cause for low utilization, i.e. dropout, low student interest, quality of programs, lack of equipment, etc. Following this,

steps could be taken to suggest, and ultimately demonstrate, corrective measures, i.e. accept more postsecondary students, shift equipment from school to school, improve system of purging old student waiting lists, and develop or expand an open-entry program to fill vacant work stations as soon as they develop. Another possible method to increase the efficiency of the use of certain equipment and justify the purchase of very expensive equipment is to purchase one of the items for an entire region or possible more than one region and then rotate this item from school to school.

Another component of this study could be a detailed cost element analysis of selected programs, schools or regions to determine the relative costs of offering various programs and identifying what portion of these costs are attributable to the teacher's salary, consumable supplies, utilities, amortized building costs, amortized equipment cost, etc. This information would assist in evaluating the efficiency of the programs and assist in budgeting and programming procedures.

4. Conduct supportive research, exemplary and dissemination activities for the development and implementation of competency based education.

The staff of the Resources Development Unit supports the concept of Competency Based Vocational Education and will provide assistance for the development and expansion of this program. This may be in the form of technical assistance, funding of projects, or the development and execution of dissemination activities. The "master plan" for the development and implementation of competency based vocational education more specifically spells out the role of the Resources Development Unit in this endeavor.

5. Conduct predictive and projective research to be used in determining the future needs of vocational education.

While the majority of educators view operational research as an attempt to find solutions to rather immediate problems facing management, this alone cannot suffice. In our rapidly changing society, where occupations are becoming obsolete at a rather rapid pace and new occupations are emerging at an equally rapid rate, operational research cannot neglect the aspect of predictive or projective research. Change in education, historically, is a slow process. However, many times this process could have been speeded up by having some foresight into societal demands and technological changes.

This unit would be remiss not to attempt to provide research statistics of a forecasting nature to vocational education decision-makers in Kentucky.

6. Support the development of a comprehensive plan of guidance, placement and follow-up of vocational education students that will extend from grades 7, 8, or 9 through postsecondary and adult education.

The Resources Development Unit has identified the need to support the development and demonstration of a comprehensive vocational guidance and placement/follow-up system. This developmental effort should identify the processes which would first, provide a 100% accountability of vocational students; second, a coordinated effort to maintain the system; and third, a collaboration effort to improve the processes and products.

In the developmental effort, the program should identify the various functions and processes to include: surveys of manpower supply and demand; provisions for an advisory committee; developing or obtaining job descriptions; publicizing and advertising the program; a follow-up system utilizing local and state resources; a unified reporting and recordkeeping system, and a student assessment component for identifying interests, abilities, aptitudes, and temperaments.

7. Expand the operation of a statewide program of dissemination to support existing programs in vocational education through publications and all media channels.

Dissemination of information to the general public on vocational education programs, services, and activities was recognized as a priority item in the Delphi survey. A new responsibility for this unit, it is mainly handled by in-house communications activities.

In the past, material has been disseminated over radio and TV, and on a limited basis to the newspapers of the state, in addition to publication of brochures and pamphlets on various programs. Neither a clearly delineated Bureau policy specifying personnel responsibilities for these activities, nor a plan for these efforts to set priorities, procedures, or guidelines exists presently. Gaps and duplications in the information we present to the public are likely to exist.

A system that will pull together the various media components and distribution systems now in use is clearly called for. Added to this is a lack of knowledge on the part of many staff members of what media are available, what are appropriate news programming releases, what supporting services are available.

Formulation of a policy statement, development of a plan for these efforts, inservice programs for staff, and clarification of relationship with support departments and divisions are all necessary steps to fulfilling this objective.

It is expected that policy, guidelines, and a plan will be drafted by the proposed Communications Task Force for presentation to the Vocational Education Cabinet. For FY '76 dissemination activities are expected to be carried out as in-house activities, or by support departments and divisions.

8. Identify and demonstrate techniques to produce additional vocational education experience for students in the real work world setting.

With the present vocational facilities and programs in the state, there remains a need to develop alternative preparatory programs which will identify and demonstate techniques to provide vocational education experiences for students in the real work world setting. Examples to identify new or supplement existing programs include co-op education, apprenticeship education, work experience, and other related work experiences.

9. Develop a model vocational education needs assessment program that will be applicable to a school district, a vocational education region or the State as a total.

Planning for vocational education programs, services, and activities at the local or regional level is a very complex exercise. However, it is believed that this process can be simplified considerably by the development of a model that will pinpoint the specific inputs that are essential for the development of a comprehensive plan. The purpose of this model is not the generation of new data but the identification of data already available and the procedures for incorporating it in the model. This activity is not one that can be handled by the Resources Development Unit alone but will require the assistance and cooperation of the entire Bureau as well as other divisions of the State Department of Education.

10. Conduct a study to determine the vocational education needs of the disadvantaged and handicapped students in Kentucky.

This area of endeavor is one of the major concerns of the United States Office of Education and an area in which the recent G.A.O. report indicated Kentucky was weak. It would appear to be extremely important here to coordinate research

and development endeavors funded with the Commissioner's Discretionary Funds and any research and development endeavors undertaken through this office in attempt to avoid duplication of efforts. It would appear also that a close working relationship should be developed between other Units in the Bureau and the Bureau of Vocational Rehabilitation.

Due to the importance of the coordinated effort mentioned above, the first step would appear to be a needs assessment in this area.

11. Identify and demonstrate techniques to improve postsecondary, adult and continuing education in Kentucky.

With the mean age of the population of this country increasing each year and the half-life of education decreasing at a rapid rate, this priority becomes even more significant, not only in Kentucky but nationwide. This priority would seem to complement priorities 3 and 5. The 1970 Census revealed that the decade of the 60's showed a greater decrease in elementary age children than the depression years of the 30's. This combined with several other facts such as low utilization of facilities and equipment, occupations becoming obsolete and the lowest mean education of adults 25 years and over would tend to make this priority a prime candidate for predictive research.

12. Identify and demonstrate techniques to expand the concept of educational laddering or educational articulation as it relates to vocational education.

There is a need to provide for the articulation of vocational education programs on an internal and external basis. The intent of this effort is to develop a model process to provide the plan and operational structure for achieving the laddering concept and to develop a model program to demonstrate the processes and products for vocational program articulation with identified competencies throughout.

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